Patent Claims

1. Method for coating a workpiece, whereby a material is applied to the workpiece by thermal spray coating,

characterized in that

the spraying process is monitored on-line by detecting properties of the particles in the spray jet and supplying them as actual values, and that the actual values are compared directly with target values, or characteristic quantities derived from the actual values are compared with the target values, and that, when a deviation prevails between the actual values or characteristic quantities and the pre-specified target values, the process parameters for thermal spray coating are adjusted automatically by a regulator on the basis of at least one neuronal network.

2. Method according to Claim 1,

characterized in that

the properties detected for the spray jet include the particle temperature and/or the particle velocity and/or the particle size and/or the luminous intensity of the particles.

3. Method according to Claim 1 or 2,

characterized in that

a regulator having a neuronal network (16) is used, wherein the neuronal network (16) has at least two layers (17, 18) having multiple neurons (19, 20), the neurons (19) of the first layer (17) having nonlinear transmission functions and the neurons (20) of the second layer (18) having a linear transmission function.

4. Method according to Claim 1 or 2,

characterized in that

a neuro-fuzzy regulator (29) that combines at least one neuronal network and fuzzy logic rules and thus maps statistical relationships between input variables and output variables of the neuro-fuzzy regulator is used.

5. Method according to Claim 4,

characterized in that

the neuro-fuzzy regulator (29) has a neuronal network, wherein the neuronal network has at least four layers (21, 23, 25, 27) having a plurality of neurons (22, 24, 26, 28), the neurons (22) of the input layer (21) mapping a fuzzification, the neurons (28) of the output layer (27) mapping a defuzzification and the neurons (24, 26) of the layers (23, 25) arranged between the input layer (21) and the output layer (27) mapping a fuzzy inference.